

WHAT IS CLAIMED IS:

1. A piezo-driven parts feeder that conveys parts by generating vibration with a vibration generator including an elastic member having a piezoelectric element mounted thereto
5 to align the parts, comprising:

a moving table having or supporting the parts conveying member;

a fixed table disposed below the moving table, for supporting the moving table so as to freely vibrate the moving
10 table through the vibration generator;

the vibration generator including a first elastic member and a piezoelectric element mounted to the first elastic member, one end of the first elastic member being fixed to the moving table and the other end of the first
15 elastic member being fixed to the fixed table; and

a support member including a second elastic member different from the first elastic member, one end of the second elastic member being fixed to the moving table and the other end of the second elastic member being fixed to the fixed
20 table.

2. A piezo-driven parts feeder according to Claim 1, wherein:

the first elastic member and the second elastic member each include a flat-plate part; and

25 the flat-plate parts of the first and second elastic

members are arranged at an almost equal inclination angle with respect to the vertical direction.

3. A piezo-driven parts feeder according to Claim 1, wherein:

5 the first elastic member is formed approximately in L-shape; wherein

one side of the L-shape is arranged almost perpendicularly to the moving table and the fixed table; and

10 the other side of the L-shape is arranged almost in parallel to the moving table.

4. A piezo-driven parts feeder according to Claim 1, wherein the parts conveying track includes a linear part.

5. A piezo-driven parts feeder according to Claim 1, wherein the parts conveying track includes a spiral part.

15 6. A piezo-driven parts feeder according to Claim 1, wherein:

the parts conveying track includes a spiral part;

20 the first elastic member is formed approximately in L-shape and arranged almost horizontally between the upper moving table and the lower fixed table; wherein

a first side of the L-shape extends toward the center of the fixed table, the end of the extending side being fixed to the fixed table;

25 a second side of the L-shape is fixed to the moving table.

7. A piezo-driven parts feeder according to Claim 6,
wherein the width of the first side of the L-shape extending
toward the center of the moving table is inclined
approximately at an angle relative to the vertical direction
5 equal to that of the second elastic member relative to the
vertical direction.

8. A piezo-driven parts feeder according to Claim 1,
wherein:

the fixed table is supported by a base through a third
10 elastic member, wherein

the spring constant of the third elastic member is
smaller than either of the spring constants of the first
elastic member and the second elastic member.

9. A piezo-driven parts feeder according to Claim 1,
15 wherein the vibration generator is resonated at its own
characteristic frequency determined by the moving table, the
first elastic member, and the second elastic member.

10. A piezo-driven parts feeder according to Claim 1,
further comprising a displacement sensor for determining the
20 vibration displacement of the moving table relative to the
fixed table, wherein

the drive vibration or the drive output by the vibration
generator is controlled in accordance with the determination
by the displacement sensor.

25 11. A piezo-driven parts feeder according to Claim 1,

wherein:

the first elastic member is replaceable, wherein

the first elastic member can be replaced with another
first elastic member having a spring constant different from
5 that of the first elastic member before replacement.

12. A piezo-driven parts feeder according to Claim 1,
further comprising a mounting-angle changer for changing the
mounting angle of the first elastic member relative to the
moving table and the fixed table.

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